

ABSTRACT

[0055] The present invention provides a method of forming an MRAM cell which minimizes the occurrence of electrical shorts during fabrication. A first conductor in a trench is provided in an insulating layer and an upper surface of the insulating layer and the first conductor is planarized. Then, a dielectric layer is deposited to a thickness slightly greater than the desired final thickness of a sense layer, which is formed later. The dielectric layer is then patterned and etched to form an opening for the cell shapes over the first conductor. Then, a permalloy is electroplated in the cell shapes to form the sense layer. The sense layer and dielectric layer are flattened and then a nonmagnetic tunnel barrier layer is deposited. Finally, the pinned layer is formed over the tunnel barrier layer.